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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,092	09/10/2003	Kah-Ong Tan	59846 (71987)	5934
7590 Mr. Peter F. Corless EDWARDS & ANGELL, LLP 101 Federal Street Boston, MA 02110			EXAMINER LAM, HUNG H	
			ART UNIT 2622	PAPER NUMBER

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/660,092

Applicant(s)

TAN ET AL.

Examiner

Hung H. Lam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09/10/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 4, 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya (US-6,359,740) in view of Farrell (US-6,977,187).

With regarding **claim 1**, Tsuchiya a digital image capturing module assembly, which comprises:

a lens holder (Figs. 1, 3-6; 30, 20, 20a), which has one side defined as a focusing plane (20-20a), and which is formed with a plurality of aligning posts (pins 201;201a;301a;201c) on the periphery of the focusing plane (see Fig. 2-6) and is further formed with a ring plane

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between the focusing plane and the aligning posts that completely surrounds the focusing plane (see ring surface 204 in Fig. 2; Col. 1, Ln. 65-Col. 2, Ln. 10); and

a photosensitive printed circuit board (10-10c), which is formed with a plurality of aligning holes (101a-101c) corresponding to the aligning posts on the lens holder (see Figs. 1 and 3-6), and which is mounted on the lens holder by fitting the aligning holes thereof to the aligning posts on the lens holder (see Figs. 1 and 3-6; Col. 1, Ln. 60-Col. 2, Ln. 67);

However, Tsuchiya fails to explicitly disclose an adhesive layer, which is coated over the periphery of the focusing plane and over the ring plane; and wherein the respective tips of the aligning posts on the lens holder are each melted into a bolting structure to secure the photosensitive printed circuit board firmly in position on the lens holder; and wherein the firmly-secured photosensitive printed circuit board forcefully presses against the adhesive layer to be thereby adhered firmly in position on the lens holder with the adhesive layer providing a sealed light-impenetrable effect at the junction between the photosensitive printed circuit board and the lens holder.

In the same field of endeavor, Farrell teaches a method for packaging an electronic and optoelectronic component (abstract; Col. 1; Ln. 14-16) wherein a bonding agent, an adhesive, and/or a susceptor (Clearweld) material (30) may be dispensed onto the distal end of each side-wall or onto the mating surface on the substrate, before lid assembly (Figs. 2-3; 10) is mated to populated substrate 20 (Figs. 2-3; 10; Col. 5, Ln. 8-14). Farrell further teaches that an Ultrasonic horn (Fig. 9; 40) can be used to melt the distal ends of the alignment pins to secure lid assembly 10 to substrate 20 (Col. 5, Ln. 14-23). In light of the teaching from Farrell, it would have been obvious to one of ordinary skill in the art at the time the invention was made

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to modify the device of Tsuchiya to apply bonding agent, an adhesive, and/or a susceptor (Clearweld 30) material onto the matting surface of a lens holder and melt the distal ends of the alignment pins in order to secure the lens holder and the circuit board/substrate. The modifications thus not only prevent light from entering the junction between a circuit board and a lens holder, but also prevent dust and moisture from damaging the packaging device.

With regarding **claim 4**, Tsuchiya in view of Farrell discloses the digital image capturing module assembly wherein the aligning posts on the lens holder is made of plastics (Farrell: Col. 5, Ln. 8-23: it is inherent that the alignment pins 18 are made of plastics).

With regarding **claim 5**, the claim is a method claim of the apparatus claim 1. Therefore, claim 5 is analyzed and rejected as discussed in claim 1.

With regarding **claim 8**, the claim is a method claim of the apparatus claim 4. Therefore, claim 8 is analyzed and rejected as discussed in claim 4.

4. Claims 2, 3, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya in view of Farrell and further in view of Kim (US-2003/0,223,008).

With regarding **claim 2**, Tsuchiya in view of Farrell fails to explicitly disclose the digital image capturing module assembly, wherein the photosensitive printed circuit board is a CCD-based photosensitive printed circuit board.

In the same field of endeavor, Kim teaches an image sensor module having a CCD or CMOS image sensor as a basic component of the camera module ([0006]). Kim further teaches that a COB (chip on board) package can be used to reduce the height of the module ([0006]). In light of the teaching from Kim, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Tsuchiya and Farrell by having a CCD or CMOS image sensor as a basic component of the camera module as taught by Kim. The modifications thus provide a flexible camera module, which can be used to mount CCD or CMOS imager.

With regarding **claim 3**, Tsuchiya in view of Farrell fails to explicitly disclose the digital image capturing module assembly, wherein the photosensitive printed circuit board is a CMOS-based photosensitive printed circuit board.

In the same field of endeavor, Kim teaches an image sensor module having a CCD or CMOS image sensor as a basic component of the camera module ([0006]). Kim further teaches that a COB (chip on board) package can be used to reduce the height of the module ([0006]). In light of the teaching from Kim, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Tsuchiya and Farrell by having a CCD or CMOS image sensor as a basic component of the camera module as taught by Kim. The modifications thus provide a flexible camera module, which can be used to mount CCD or CMOS imager.

With regarding **claim 6**, the claim is a method claim of the apparatus claim 2. Therefore, claim 6 is analyzed and rejected as discussed in claim 2.

With regarding **claim 7**, the claim is a method claim of the apparatus claim 3. Therefore, claim 7 is analyzed and rejected as discussed in claim 3.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Ning (US-6,654,187) discloses a camera lens carrier for circuit board mounting.

b) Lung (US-6,977,783) discloses lens holder module, which can be clipped into a board.

c) Yamaguchi (US-7,092,174) discloses an image module wherein a board is mounted to the image module by a plurality of posts.

d) Tan (US-2004/0,227,848) discloses a camera module wherein the lens holder and the pc board are secured by adhesive.

d) Tan (US-2005/0,041,098) discloses a camera module wherein the lens holder and the pc board are secured by adhesive and melting pins.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung H. Lam whose telephone number is 571-272-7367. The examiner can normally be reached on Monday - Friday 8AM - 5PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NGOC YEN VU can be reached on 571-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HL

02/07/07



NGOC-YEN VU
SUPERVISORY PATENT EXAMINER